SEQUENCE LISTING

<110>   Klinikum der Universitaet Muenchen Grosshadern-Innenstadt

<120>   Leptin antagonist and method for the quantitative measurement of leptin

<130>   LM01P002WO

<150>   DE 103 53 953.4
<151>   2003-11-17

<160>   8

<170>   PatentIn version 3.1

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Leu Ala Ala Gln Pro Ala Met Ala Glu Leu Val Met Thr Gln Ser Pro
            20   25   30

Lys Phe Met Ser Thr Ser Ile Gly Asp Arg Val Asn Ile Thr Cys Lys
        35   40   45

Ala Thr Gln Asn Val Arg Thr Ala Val Thr Trp Tyr Gln Gln Lys Pro
    50   55   60

Gly Gln Ser Pro Gln Ala Leu Ile Phe Leu Ala Ser Asn Arg His Thr
65   70   75   80

Gly Val Pro Ala Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr
                85   90   95

Leu Thr Ile Asn Asn Val Lys Ser Glu Asp Leu Ala Asp Tyr Phe Cys
                100   105   110

Leu Gln His Trp Asn Tyr Pro Leu Thr Phe Gly Ser Gly Thr Lys Leu
            115   120   125

Glu Ile Lys Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Pro Pro
            130   135   140

Ser Ser Glu Gln Leu Thr Ser Gly Gly Ala Ser Val Val Cys Phe Leu
145   150   155   160

Asn Asn Phe Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys Ile Asp Gly
                165   170   175

Ser Glu Arg Gln Asn Gly Val Leu Asn Ser Trp Thr Asp Gln Asp Ser
            180   185   190

Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys Asp
            195   200   205

Glu Tyr Glu Arg His Asn Ser Tyr Thr Cys Glu Ala Thr His Lys Thr
    210   215   220

Ser Thr Ser Pro Ile Val Lys Ser Phe Asn Arg Gly Glu Cys Xaa Xaa
225   230   235   240

Ser Arg Val Lys Arg Xaa Gln Ser Xaa Gly Gly Pro Gly Thr Pro Ile
            245   250   255

Arg Pro Ile Gly Xaa Pro Tyr Tyr Asn Ser Leu Gly Gly Gly Phe Gln
            260   265   270

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   Xaa His Asn Pro Ile Pro Met Pro Thr Ala Ala Ala Gly Leu Leu
   1   5   10   15

tta ctc gct gcc caa cca gcc atg gcc gag ctc gtg atg acc cag tct   95
Leu Leu Ala Ala Gln Pro Ala Met Ala Glu Leu Val Met Thr Gln Ser
              20   25   30

cca aaa ttc atg tcc aca tca ata gga gac agg gtc aat atc acc tgc   143
Pro Lys Phe Met Ser Thr Ser Ile Gly Asp Arg Val Asn Ile Thr Cys
              35   40   45

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aag gcc act cag aat gtt cgt act gct gtt acc tgg tat caa cag aaa     191
Lys Ala Thr Gln Asn Val Arg Thr Ala Val Thr Trp Tyr Gln Gln Lys
        50              55                  60

cca ggg cag tct cct caa gca ctg att ttc ttg gca tcc aac cgg cac     239
Pro Gly Gln Ser Pro Gln Ala Leu Ile Phe Leu Ala Ser Asn Arg His
    65              70                  75

act ggt gtc cct gct cga ttc aca ggc agt gga tct ggg aca gat ttc     287
Thr Gly Val Pro Ala Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe
80              85                  90                  95

act ctc acc att aac aat gtg aaa tct gaa gac ctg gca gat tat ttc     335
Thr Leu Thr Ile Asn Asn Val Lys Ser Glu Asp Leu Ala Asp Tyr Phe
                100             105                 110

tgt cta caa cat tgg aat tat cct ctc acg ttc ggc tcg ggg aca aag     383
Cys Leu Gln His Trp Asn Tyr Pro Leu Thr Phe Gly Ser Gly Thr Lys
            115             120                 125

ttg gaa ata aaa cgg gct gat gct gca cca act gta tcc atc ttc cca     431
Leu Glu Ile Lys Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Pro
        130             135                 140

cca tcc agt gag cag tta aca tct gga ggt gcc tca gtc gtg tgc ttc     479
Pro Ser Ser Glu Gln Leu Thr Ser Gly Gly Ala Ser Val Val Cys Phe
    145             150                 155

ttg aac aac ttc tac ccc aaa gac atc aat gtc aag tgg aag att gat     527
Leu Asn Asn Phe Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys Ile Asp
160             165                 170                 175

ggc agt gaa cga caa aat ggc gtc ctg aac agt tgg act gat cag gac     575
Gly Ser Glu Arg Gln Asn Gly Val Leu Asn Ser Trp Thr Asp Gln Asp
                180             185                 190

agc aaa gac agc acc tac agc atg agc agc acc ctc acg ttg acc aag     623
Ser Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys
            195             200                 205

gac gag tat gaa cga cat aac agc tat acc tgt gag gcc act cac aag     671
Asp Glu Tyr Glu Arg His Asn Ser Tyr Thr Cys Glu Ala Thr His Lys
        210             215                 220

aca tca act tca ccc att gtc aag agc ttc aac agg gga gag tgt tag     719
Thr Ser Thr Ser Pro Ile Val Lys Ser Phe Asn Arg Gly Glu Cys
    225             230                 235

taa tct aga gtt aag cgg ccg caa tcg agg ggg ggc ccg gta ccc caa     767
    Ser Arg Val Lys Arg Pro Gln Ser Arg Gly Gly Pro Val Pro Gln
        240             245                 250

ttc gcc cta tag ggg ngc cgt att aca att cac tgg gcg gcg gtt ttc     815
Phe Ala Leu     Gly Xaa Arg Ile Thr Ile His Trp Ala Ala Val Phe
    255                 260                 265

aan                                                                 818
Xaa
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Val Ile Met Lys Tyr Leu Xaa Ala Tyr Gly Pro Ala Ala Gly Leu Leu
            20                  25                  30


Leu Leu Ala Ala Gln Pro Ala Met Ala Gln Val Lys Leu Leu Glu Ser
        35                  40                  45


Gly Pro Gly Leu Val Ala Pro Ser Glu Ser Leu Ser Ile Thr Cys Thr
    50                  55                  60


Ile Ser Gly Phe Ser Leu Thr Asp Asp Gly Val Ser Trp Ile Arg Gln
65                  70                  75                  80


Pro Pro Gly Lys Gly Leu Glu Trp Leu Gly Val Ile Trp Gly Gly Gly
                85                  90                  95


Ser Thr Tyr Phe Asn Ser Leu Phe Lys Ser Arg Leu Ser Ile Thr Arg
            100                 105                 110


Asp Asn Ser Lys Ser Gln Val Phe Leu Glu Met Asp Ser Leu Gln Thr
            115                 120                 125


Asp Asp Thr Ala Met Tyr Tyr Cys Ala Lys His Asp Gly His Glu Thr
    130                 135                 140


Met Asp Tyr Trp Gly Gln Gly Thr Ser Val Thr Val Ser Ser Ser Lys
145                 150                 155                 160


Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala Pro Gly Ser Ala Ala Gln
                165                 170                 175


Thr Asn Ser Met Val Thr Leu Gly Cys Leu Val Lys Gly Tyr Phe Pro
            180                 185                 190


Glu Pro Val Thr Val Thr Trp Asn Ser Gly Ser Leu Ser Ser Gly Val
            195                 200                 205
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His Thr Phe Pro Ala Val Leu Gln Ser Asp Leu Tyr Thr Leu Ser Ser
    210             215             220

Ser Val Thr Val Pro Ser Ser Thr Trp Pro Ser Glu Thr Val Thr Cys
225             230             235             240

Asn Val Ala His Pro Ala Ser Ser Thr Lys Val Asp Lys Lys Ile Val
                245             250             255

Pro Arg Asp Cys Thr Ser His His His His His Xaa Ala Ser Leu
            260             265             270

Val Val Ala Val Ala Leu His Ser Phe Val Xaa Ile Lys Ala Asn Arg
        275             280             285

Arg Pro Ala Xaa
    290


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Leu Ala Xaa Arg Gly Gly Gly Arg Lys Ile Xaa Phe Xaa Arg Glu Thr
1               5               10              15

gtc ata atg aaa tac ctt ttn gcc tac ggg cca gcc gct gga ttg tta      96
Val Ile Met Lys Tyr Leu Xaa Ala Tyr Gly Pro Ala Ala Gly Leu Leu
            20              25              30

tta ctc gct gcc caa cca gcc atg gcc cag gtg aaa ctg ctc gag tca     144
Leu Leu Ala Ala Gln Pro Ala Met Ala Gln Val Lys Leu Leu Glu Ser
        35              40              45

gga cct ggc ctg gtg gcg ccc tca gag agc ctg tcc atc aca tgc act     192
Gly Pro Gly Leu Val Ala Pro Ser Glu Ser Leu Ser Ile Thr Cys Thr
    50              55              60

atc tca ggg ttc tca tta acc gac gat ggt gta agc tgg att cgg cag     240
Ile Ser Gly Phe Ser Leu Thr Asp Asp Gly Val Ser Trp Ile Arg Gln
65              70              75              80

cct cca gga aag ggt ctg gag tgg ctg gga gta ata tgg ggt ggt gga     288
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Pro Pro Gly Lys Gly Leu Glu Trp Leu Gly Val Ile Trp Gly Gly Gly
            85              90              95

agc aca tac ttt aat tca ctt ttc aaa tcc aga ctg agc atc acc agg     336
Ser Thr Tyr Phe Asn Ser Leu Phe Lys Ser Arg Leu Ser Ile Thr Arg
            100             105             110

gac aac tct aag agc caa gtt ttc tta gaa atg gac agt cta caa act     384
Asp Asn Ser Lys Ser Gln Val Phe Leu Glu Met Asp Ser Leu Gln Thr
            115             120             125

gat gac aca gcc atg tac tac tgc gcc aaa cat gac gga cac gag act     432
Asp Asp Thr Ala Met Tyr Tyr Cys Ala Lys His Asp Gly His Glu Thr
        130             135             140

atg gac tat tgg ggt caa gga acc tca gtc acc gtc tcc tca tcc aaa     480
Met Asp Tyr Trp Gly Gln Gly Thr Ser Val Thr Val Ser Ser Ser Lys
145             150             155             160

acg aca ccc cca tct gtc tat cca ctg gcc cct gga tct gct gcc caa     528
Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala Pro Gly Ser Ala Ala Gln
                165             170             175

act aac tcc atg gtg acc ctg gga tgc ctg gtc aag ggc tat ttc cct     576
Thr Asn Ser Met Val Thr Leu Gly Cys Leu Val Lys Gly Tyr Phe Pro
            180             185             190

gag cca gtg aca gtg acc tgg aac tct gga tcc ctg tcc agc ggt gtg     624
Glu Pro Val Thr Val Thr Trp Asn Ser Gly Ser Leu Ser Ser Gly Val
        195             200             205

cac acc ttc cca gct gtc ctg cag tct gac ctc tac act ctg agc agc     672
His Thr Phe Pro Ala Val Leu Gln Ser Asp Leu Tyr Thr Leu Ser Ser
        210             215             220

tca gtg act gtc ccc tcc agc acc tgg ccc agc gag acc gtc acc tgc     720
Ser Val Thr Val Pro Ser Ser Thr Trp Pro Ser Glu Thr Val Thr Cys
225             230             235             240

aac gtt gcc cac ccg gcc agc agc acc aag gtg gac aag aaa att gtg     768
Asn Val Ala His Pro Ala Ser Ser Thr Lys Val Asp Lys Lys Ile Val
            245             250             255

ccc agg gat tgt act agt cat cat cat cat cat cat taa gct agc cta     816
Pro Arg Asp Cys Thr Ser His His His His His His     Ala Ser Leu
            260             265

gtg gtg gcg gtg gct ctc cat tcg ttt gtg ang ata aag gcc aat cgn     864
Val Val Ala Val Ala Leu His Ser Phe Val Xaa Ile Lys Ala Asn Arg
            275             280             285

aga cct gcn cna                                                     876
Arg Pro Ala Xaa
            290
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                                        Met Ala Gln Val Gln Leu
                                         1               5


cag gag tca gga act gaa gtg gta aag cct ggg gct tca gtg aag ttg      103
Gln Glu Ser Gly Thr Glu Val Val Lys Pro Gly Ala Ser Val Lys Leu
            10              15              20


tcc tgc aag gct tct ggc tac atc ttc aca agt tat gat ata gac tgg      151
Ser Cys Lys Ala Ser Gly Tyr Ile Phe Thr Ser Tyr Asp Ile Asp Trp
        25              30              35


gtg agg cag acg cct gaa cag gga ctt gag tgg att gga tgg att ttt      199
Val Arg Gln Thr Pro Glu Gln Gly Leu Glu Trp Ile Gly Trp Ile Phe
    40              45              50


cct gga gag ggg agt act gaa tac aat gag aag ttc aag ggc agg gcc      247
Pro Gly Glu Gly Ser Thr Glu Tyr Asn Glu Lys Phe Lys Gly Arg Ala
55              60              65              70


aca ctg agt gta gac aag tcc tcc agc aca gcc tat atg gag ctc act      295
Thr Leu Ser Val Asp Lys Ser Ser Ser Thr Ala Tyr Met Glu Leu Thr
                75              80              85


agg ctg aca tct gag gac tct gct gtc tat ttc tgt gct aga ggg gac      343
Arg Leu Thr Ser Glu Asp Ser Ala Val Tyr Phe Cys Ala Arg Gly Asp
            90              95              100


tac tat agg cgc tac ttt gac ttg tgg ggc caa ggg acc acg gtc acc      391
Tyr Tyr Arg Arg Tyr Phe Asp Leu Trp Gly Gln Gly Thr Thr Val Thr
        105             110             115


gtc tcc tca tgt gga ggc ggt tca ggc gga ggt ggc tct ggc ggt ggc      439
Val Ser Ser Cys Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly
    120             125             130


gga tct gac att gag ctc acc cag tct cca gca atc atg tct gca tct      487
Gly Ser Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser
135             140             145             150


cca ggg gag agg gtc acc atg acc tgc agt gcc agc tca agt ata cgt      535
Pro Gly Glu Arg Val Thr Met Thr Cys Ser Ala Ser Ser Ser Ile Arg
                155             160             165


tac ata tat tgg tac caa cag aag cct gga tcc tcc ccc aga ctc ctg      583
Tyr Ile Tyr Trp Tyr Gln Gln Lys Pro Gly Ser Ser Pro Arg Leu Leu
            170             175             180


att tat gac aca tcc aac gtg gct cct gga gtc cct ttt cgc ttc agt      631
Ile Tyr Asp Thr Ser Asn Val Ala Pro Gly Val Pro Phe Arg Phe Ser
        185             190             195
```

```
ggc agt ggg tct ggg acc tct tat tct ctc aca atc aac cga atg gag        679
Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Asn Arg Met Glu
    200             205             210

gct gag gat gct gcc act tat tac tgc cag gag tgg agt ggt tat cct        727
Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Glu Trp Ser Gly Tyr Pro
215             220             225             230

ctc acg ttc ggc tcg ggc acc aag cgg gaa atc aaa cgg gcg gcc gca        775
Leu Thr Phe Gly Ser Gly Thr Lys Arg Glu Ile Lys Arg Ala Ala Ala
            235             240             245

ggt gcg ccg gtg ccg tat ccg gat ccg ctg gaa ccg cgt gccgcataga        824
Gly Ala Pro Val Pro Tyr Pro Asp Pro Leu Glu Pro Arg
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ctgttgaa                                                                832
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Gly Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Ile Phe Thr
            20                  25                  30


Ser Tyr Asp Ile Asp Trp Val Arg Gln Thr Pro Glu Gln Gly Leu Glu
        35                  40                  45


Trp Ile Gly Trp Ile Phe Pro Gly Glu Gly Ser Thr Glu Tyr Asn Glu
    50                  55                  60


Lys Phe Lys Gly Arg Ala Thr Leu Ser Val Asp Lys Ser Ser Ser Thr
65                  70                  75                  80


Ala Tyr Met Glu Leu Thr Arg Leu Thr Ser Glu Asp Ser Ala Val Tyr
                85                  90                  95


Phe Cys Ala Arg Gly Asp Tyr Tyr Arg Arg Tyr Phe Asp Leu Trp Gly
            100                 105                 110


Gln Gly Thr Thr Val Thr Val Ser Ser Cys Gly Gly Gly Ser Gly Gly
            115                 120                 125
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Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile Glu Leu Thr Gln Ser Pro
    130   135   140

Ala Ile Met Ser Ala Ser Pro Gly Glu Arg Val Thr Met Thr Cys Ser
145   150   155   160

Ala Ser Ser Ser Ile Arg Tyr Ile Tyr Trp Tyr Gln Gln Lys Pro Gly
                165   170   175

Ser Ser Pro Arg Leu Leu Ile Tyr Asp Thr Ser Asn Val Ala Pro Gly
            180   185   190

Val Pro Phe Arg Phe Ser Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu
        195   200   205

Thr Ile Asn Arg Met Glu Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln
    210   215   220

Glu Trp Ser Gly Tyr Pro Leu Thr Phe Gly Ser Gly Thr Lys Arg Glu
225   230   235   240

Ile Lys Arg Ala Ala Ala Gly Ala Pro Val Pro Tyr Pro Asp Pro Leu
            245   250   255

Glu Pro Arg

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cgccctcaga gagcctgtcc atcacatgca ctatctcagg gttctcatta accgacgatg   120

gtgtaagctg gattcggcag cctccaggaa agggtctgga gtggctggga gtaatatggg   180

gtggtggaag cacatacttt aattcacttt tcaaatccag actgagcatc accagggaca   240

actctaagag ccaagttttc ttagaaatgg acagtctaca aactgatgac acagccatgt   300

actactgcgc caaacatgac ggacacgaga ctatggacta ttggggtcaa ggaacctcag   360

tcaccgtctc ctcatccaaa acgacacccc catctgtcta tccactggcc cctggatctg   420

ctgcccaaac taactccatg gtgaccctgg gatgcctggt caagggctat ttccctgagc   480

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cagtgacagt gacctggaac tctggatccc tgtccagcgg tgtgcacacc ttcccagctg    540

tcctgcagtc tgacctctac actctgagca gctcagtgac tgtcccctcc agcacctggc    600

ccagcgagac cgtcacctgc aacgttgccc acccggccag cagcaccaag gtggacaaga    660

aaattgtgcc cagggattgt actagtggtg gcggaggtag tggtggcgga ggtagcggtg    720

gcggaggttc tggtggcgga ggttccgaat cctcgaggt gcccatccaa aaagtccaag    780

atgacaccaa aaccctcatc aagacaattg tcaccaggat caatgacatt tcacacacgc    840

agtcagtctc ctccaaacag aaagtcaccg gtttggactt cattcctggg ctccacccca    900

tcctgacctt atccaagatg gaccagacac tggcagtcta ccaacagatc ctcaccagta    960

tgccttccag aaacgtgatc caaatatcca cgacctgga gaacctccgg gatcttcttc    1020

acgtgctggc cttctctaag agctgccact tgccctgggc cagtggcctg gagaccttgg    1080

acagcctggg gggtgtcctg gaagcttcag gctactccac agaggtggtg gccctgagca    1140

ggctgcaggg gtctctgcag gacatgctgt ggcagctgga cctcagccct gggtgcacta    1200

gtcatcatca tcatcatcat taagctagcc tagtggtggc ggtggctctc ca            1252
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1               5                   10                  15


Ser Glu Ser Leu Ser Ile Thr Cys Thr Ile Ser Gly Phe Ser Leu Thr
                20                  25                  30


Asp Asp Gly Val Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu
            35                  40                  45


Trp Leu Gly Val Ile Trp Gly Gly Gly Ser Thr Tyr Phe Asn Ser Leu
        50                  55                  60


Phe Lys Ser Arg Leu Ser Ile Thr Arg Asp Asn Ser Lys Ser Gln Val
65                  70                  75                  80


Phe Leu Glu Met Asp Ser Leu Gln Thr Asp Asp Thr Ala Met Tyr Tyr
                85                  90                  95
```

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Cys Ala Lys His Asp Gly His Glu Thr Met Asp Tyr Trp Gly Gln Gly
            100             105             110

Thr Ser Val Thr Val Ser Ser Ser Lys Thr Thr Pro Pro Ser Val Tyr
            115             120             125

Pro Leu Ala Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu
            130             135             140

Gly Cys Leu Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp
145             150             155             160

Asn Ser Gly Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu
            165             170             175

Gln Ser Asp Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser
            180             185             190

Thr Trp Pro Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser
            195             200             205

Ser Thr Lys Val Asp Lys Lys Ile Val Pro Arg Asp Cys Thr Ser Gly
    210             215             220

Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
225             230             235             240

Gly Gly Ser Glu Phe Leu Glu Val Pro Ile Gln Lys Val Gln Asp Asp
            245             250             255

Thr Lys Thr Leu Ile Lys Thr Ile Val Thr Arg Ile Asn Asp Ile Ser
            260             265             270

His Thr Gln Ser Val Ser Ser Lys Gln Lys Val Thr Gly Leu Asp Phe
            275             280             285

Ile Pro Gly Leu His Pro Ile Leu Thr Leu Ser Lys Met Asp Gln Thr
    290             295             300

Leu Ala Val Tyr Gln Gln Ile Leu Thr Ser Met Pro Ser Arg Asn Val
305             310             315             320

Ile Gln Ile Ser Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Val
            325             330             335

Leu Ala Phe Ser Lys Ser Cys His Leu Pro Trp Ala Ser Gly Leu Glu
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                340                       345                       350

    Thr Leu Asp Ser Leu Gly Gly Val Leu Glu Ala Ser Gly Tyr Ser Thr
            355                 360                 365


    Glu Val Val Ala Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Met Leu
        370                 375                 380


    Trp Gln Leu Asp Leu Ser Pro Gly Cys Thr Ser His His His His His
    385                 390                 395                 400


His
```